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"DEVELOPMENT OF A MARKETING PLAN FOR A NEW BUSINESS MODEL OF EDP COMERCIAL or HOW CAN EDP BE THE UBER AND NOT THE TAXI DRIVER"

PRICING STRATEGY

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1. Pricing

When introducing a new product or service into the market it is important to assess the value this offering creates for the consumer. This same value is communicated through promotion and captured through a feasible pricing strategy. (Nagle & Holden, 2011) That is the reason why, when discussing *edp + solar*' pricing strategy, a value-based pricing approach, where the price is set according to the benefits provided to consumers, was chosen over a cost-based pricing approach, where the price is set according to the Cost of Goods Sold (COGS) and then, after having established it, adding a standard markup (Smith & Nagle, 1994).

In order to effectively complete this task, a correct price-setting process should be implemented. In a first moment, it is necessary for the company to have a clear and feasible pricing objective. The objective needs to be coherent with the firm's overall business strategy. In a second moment, a pricing window for both segments served should be established. In fact, by establishing a correct pricing model, *edp + solar* will be able to set profit-maximizing prices that will enable the company to capture the appropriate amount of differential value that has been created for each of the served segments (Kotler & Keller, 2016).

In general, when deciding the pricing strategy to pursue, a company can choose between the following three: penetration strategy, skimming strategy and neutral strategy. While the first one attains as main goal the maximization of market share, the second means to charge high prices in the beginning of the product lifecycle, and it is commonly used when the company's objectives are more focused in achieve a high level of profits in the short-run. Looking at the later, this strategy is normally used when trying to minimize to role of price as a marketing tool, since other tactics are considered more cost-effective for a specified product or service (Nagle & Holden, 2011).

A further description of all the different pricing objectives is given in the section below.

1.1 Pricing Objective

In a first instance, it is fundamental to understand that price levels need to be set in a way that strongly supports and follows the general marketing objectives of the company. In fact, pricing is but one element of the firm's marketing and sales strategy, and it is important that price levels reinforce the overall business strategy (Kotler & Keller, 2016). Hence, since *edp + solar* is a new brand with the long-term strategic goal of reaching a 20% penetration of the market of Solar Energy Solutions (SESs) for household, a *market penetration pricing strategy* should be implemented.

This statement is justified by the fact that, in order to fulfil *edp + solar* promise of being a turn-key no hassle solution at no cost for every customer willing to have a consistent level of savings on their electricity bill, it is necessary to infer that: on the one hand, it is not possible to set a price based on a *skimming strategy* because, in this way, the "no cost" claim would not be valid anymore. In fact, by its definition, skim prices are high in relation to what most buyers in the segment can be convinced to pay (Nagle & Holden, 2011). Moreover, a skimming pricing strategy is usually designed to capture high margins in the short run from early adopters, at the expense of a higher volume of sales (Nagle & Holden, 2011). However, since *edp + solar* is a solution that expresses its deliverable value in the amount of total savings on the electricity bill, developing a skimming strategy by charging a high price in the short-run would shrink the savings window to its minimum level, making the value not important and consistent for customers.

On the other hand, it is also not feasible to set a neutral pricing strategy. In fact, neutral pricing minimizes the role of price as a marketing tool in favour of other tactics that management believes are more powerful and cost effective for a product or a service (Nagle & Holden, 2011). This pricing model is also not applicable to the overall business strategy, mainly due to the fact *edp + solar* needs to use price as a strategic tool in order to gain market

share, since penetration of EDP Comercial's[1] current offering inside the SESs for household use market still low.

Thus, since the brand's positioning does not allow to implement either a skimming or a neutral strategy, a market penetration pricing strategy was implemented for *edp + solar*. More specifically, penetration pricing involves setting a price low enough to attract and hold a large base of customers (Nagle & Holden, 2011). This strategy is feasible for the new solution because, according to the quantitative research developed for this project, enough of the market is adequately price sensitive, meaning that both consumer profiles analyzed [2] – Users and Non-users of Renewable Sources of Energy (RSEs) – demonstrate that economic return is considered as the most important driver in order to accept the adoption of RSEs for their homes. This major finding justifies low pricing strategies, and, consequently, the low price will stimulate market growth and discourage actual and potential competition to compete with the *edp + solar* solution (Kotler & Keller, 2016). Furthermore, by using the market share growth connected to this strategy, it will be also possible to have a higher inventory turnover, creating a positive effect on fixed costs for *edp + solar*.

In order to better understand how this market penetration pricing should be applied, it is crucial to first set an initial price point. For achieving this objective, a pricing window needs to be established as it will be further explored in the following section.

1.2 Pricing Window

After having fixed the strategic objectives of *edp + solar* pricing strategy, the next step of the process is to establish an initial price window. The price window will be set for each segment targeted[3], where a price ceiling and a price floor will be defined (Nagle & Holden, 2011). This is fundamental, as the final price will need to take into account both the COGS for *edp +*

[1] From here on after, referred to as EDP
[2] Presented in the group report
[3] Consult the Group Report for a better reasoning behind the selected target markets - villa's segment (*Mansionists*) and building's segment (*Skyscrapers*).

solar, which in this case is the floor and the lowest allowable price point of the pricing windows, and the level of potential savings that can be guaranteed to every customer, that is considered as the maximum amount that a person would be willing to pay for the service, and that will be accounted as the price ceiling and the highest allowable price point of the window. Both components of the pricing window are going to be further developed.

1.2.1 Cost of Goods Sold

As said before, the COGS is considered as the floor of the pricing window, and can be defined as the amount of the fully loaded variable cost of producing the product being sold (Dolan & Gourville, 2014). In order to correctly operate, the *edp + solar* solution needs several components, and all of these represent an important weight inside the COGS accounting action. The primary component that is needed to be taken into account is the cost of acquisition of photovoltaic solar panels[4], which EDP sources from multiple manufacturers (usually Chinese) at a cost of €0,50 per Watt-peak. However, for the sake of this project, that actually leverages on stoking up in hardware for a smoother and faster service, a 20% discount rate was applied due to bulk ordering, which is one of the benefits of this business model[5]. Secondly, costs regarding installation and maintenance of the panels count for the other main component of the COGS line. Using a break-down approach, it is possible to state that installation is composed by three subcomponents, namely the cost of a micro-inverter, which are needed in order to convert the energy produced by the panels into usable energy for each household[6], the cost of the installation[7] and the maintenance costs, which are estimated to be €0,00 since maintenance is done naturally by the rain and natural elements. Finally, the last line of COGS is composed by the ownership costs, that can be defined as all the direct and indirect cost associated with the usage of a product or a service (Kotler, P., 2010). In the

[4] From here on when solar panels are mentioned, consider they are photovoltaic.
[5] Data retrieved from an interview with Eng. José Lobato Duarte, 2016.
[6] The number of inverters is strictly connected to the amount of installed power (expressed in Watt) of the solar panels. Until 250 W installed, just one inverter is needed. For 500W, two inverters are needed. From 750 W to 1500 W other types of upgraded inverters are needed, raising the COGS for the building segments.
[7] Cost of installation is estimated with a constant value of €125,00 per unit.

case of the *edp + solar* solution, ownership costs are formed by the depreciation, replacement and partial installation costs and have been estimated as 30% of the total hardware COGS. Summing up, the only difference in terms of COGS between the villa's segment and the building's segment is that, for the latter, another component is needed, which is an additional meter[8], fundamental to split the electricity produced among all the apartments in the building that are part of the solution. A complete table with all the different COGS setups for both segments can be found in exhibit 1 through 5.

1.2.2 True Economic Value

After having established the floor of the pricing window through an analysis of the COGS, a price ceiling must be set. Regardless of the different segments, the price ceiling is always determined by the *true economic value* created for the customers, which is the value that a fully informed buyer would attribute to the product or service (Dolan & Gourville, 2014). As explained above, in the case of the *edp + solar* solution, the true economic value is expressed as the amount of potential savings that is possible to achieve for each customer when acquiring solar panels. To assess the potential savings a consumer may have in a measurable manner, a formula was developed based on several simulations run on EDP's website for their current offering of *Energia Solar EDP* (exhibit 6). With the information available in those simulation results, several calculations were run in attempt to reach a formula to express the levels of potential savings of a consumer, given their characteristics and behaviours. Thus, those levels of potential savings can be expressed and calculated according to the formula presented below:

$$Level\ of\ potential\ savings\ (\%) = 7\% + 5\% \times (s-1) + 3\% \times c + 3\% \times d + 2\% \times e$$

[8] Final price for EDP of the additional meter is estimated, considering a 10% discount level, as €243,90.

7% is considered as the base value[9] for savings. From this value, it is needed to take into account the additional savings that can be achieved through the installation of other solar panels, calculated as 5% multiplied by the number of additional panels (s-1)[10], the differences in terms of being at home or not during the day (3%×c)[11], the differences in terms of being at home or not during the weekends (3%×d)[12], and the level of *Potência Contratada* (2%×e)[13]. The established parameters result from the average criteria sensitiveness and the variables, when binary, assumed the value of 0 for the most common scenario when looking at the national panorama.

Having said this, all the necessary ingredients are defined in order to set up a price for the *edp + solar* solution. However, it is important to keep in mind that specific differences in the level of potential savings (price ceiling) can arise in relation to the type of living arrangements, especially regarding customers that are part of the building solution, due to the fact the maximum level of savings is different between each household. Consequently, the setting of a final price is also affected by this market segmentation as it will be further explained in the next paragraphs.

1.3 Price Setting

1.3.1 Building Solution

For the price setting of the Building solution, it is important to keep in mind that the ultimate goal for this segment is to create incentives for more households within the same building to also get the solution[14], which delivers benefits not only to the consumers, but also to EDP. Therefore, it is natural to underline the fact that, for each additional household added to the solution, the overall rent of solar panels for every household must decrease.

[9] Average level of annual savings that are achievable with the installation of one singular solar panel.
[10] s = number of solar panels installed after the first one
[11] c = binary variable (day = 1; night = 0)
[12] d = binary variables (weekend = 1; no weekend = 0)
[13] e = *Potência Contratada* variable (-1 = 3.45; 0 = 6.9; 1=13.2; 2=20.7)
[14] For further detail consult the Group Report

To complete this task an objective function had to be developed. A parabola shape seemed to be the best fit for the solution considering the goal of incorporating an incentive scheme within the pricing strategy and for being adjustable to each specific situation (building).

A parabola can be defined by the following quadratic formula: $p = m \times (z - h)^2 + v$, where p stands for the final monthly price for the consumer (with VAT[15] included), z stands for the objective in-building penetration[16] and h for the minimum in-building penetration[17]. m and v are merely parameters that must be calculated. These last ones will be different for each building since the formula depends on the total households' number within the building, on the objective in-building penetration and on the minimum and maximum monthly prices (including VAT) that can be charged. In order to compute m and v a system of equation has to be developed including two quadratic functions: one with the point for the minimum price included and the other with the point for the maximum price included. Furthermore, to compute the maximum and minimum prices some rules were established.

The minimum final price and lowest floor of the pricing window for this solution cannot be, as said in the previous sections, lower than the COGS. However, it is necessary to bear in mind that the COGS inputted over the consumer do not include ownership costs[18] since that actual ownership of the panels and all hardware associated with it does not pass through to the consumers due to the rental nature of the service. The maximum final price must guarantee that the consumer saves at least 25% of what he/she would save if they were buying solar panels, meaning that this price level is translated into 75% of the potential savings and happens when facing the minimum possible number of households joining the solution - two. All the previous calculations can be translated into the functions present in exhibit 7.

[15] In Portugal, the current VAT for this type of solutions is 23%.

[16] In-building penetration is calculated by the number of households within a building joining the solution divided by the total number of households within the same building.

[17] The minimum number of households in the solution must be two. Therefore, the minimum in-building penetration is given by two divided by the total number of households within the same building.

[18] Ownership costs were estimated to represent 30% of the total COGS. Therefore, the minimum price only counts for 70% of the COGS.

This price level leads to a negative margin for EDP Comercial over the 5 years of contract and it is obtained when the in-building penetration counts for 100%. Besides being extremely difficult to obtain this level of in-building penetration due to external constraints, like for instance financial unavailability from households within the building or physical constraints like no roof space or other impactful structural issues, this negative margin is justified by the client acquisition and loyalty gains. Given these constraints, the optimal in-building penetration for EDP is in fact the aforementioned 50% that maximize the potential margins at the same time reducing the COGS. Having all the ingredients needed, the adjusted quadratic function is computed.

Moreover, the margins for *edp + solar* vary according to the in-building penetration presenting a parabola shape by themselves (see exhibit 8). This happens because, in fact, the COGS can be translated by a logarithmic function (see exhibit 9). Therefore, it is possible to infer that margins are maximized when the in-building penetration reaches approximately 50% as it can be seen on the exhibit 10, where the case of a model building with eight households was applied.

Furthermore, exit mechanisms have been created for households that will express the desire to breach their contract before its actual conclusion upon reaching the 5 years. Customers can cancel their service subscription with the *edp + solar* at any point of the contract's lifetime however, when breaching it, they must pay the remaining value of the contract in Present Value (PV). This strategy will allow EDP to cover for possible costs this cancellation would entail (like removal of hardware) without penalizing any of the remaining households within that building.

By creating the parabola function from scratch regarding the level of savings of each household in the building, and by considering the logarithmic function of the COGS, *edp + solar* will be able to offer adjusted and flexible solutions for customers that are living in

buildings which goes in line with the overall goal of market penetration since the "one size fits all" strategy for pricing tends to leave out a large part of the consumer pool.

1.3.2 Villa Solution

Similarly, to the Building solution, the ceiling of the pricing window for the villa solution is represented by the total savings achievable when customers acquire solar panels. As an example, by assuming that a "model customer"[19] will adopt the solution with one solar panel, the total amount of potential savings along the lifetime of the 5-year contract is estimated as 480€, assuming an average yearly electricity consumption of €960,00[20].

Given that, the pricing window for a customer living in a villa will be between €480,00 and the COGS (also for 5 years) that *edp + solar* will incur in serving the client, which are estimated as €238,20 plus VAT, resulting in the grand total of € 292,80.

In order to achieve the marketing objective of penetration inside the solar energy solutions for household use market in Portugal, an optimal level of price that guarantees the delivery of important and consistent value to customers is estimated as €354,00[21] (comprehending VAT) over the 5 years of the contract. By establishing this price level and still considering penetration as the main objective of the pricing strategy, *edp + solar* will still be able to achieve a margin of 17% on this type of solution.

However, since villas' consumption is usually higher than the nationwide average, potentially there could be a need to an increase of the number of solar panels the household would require. That increase in the additional solar panels' number is followed by increases in the level of savings leading to a higher value for consumers, which means there was the need to establish higher incentives in order to encourage the installation of additional solar panels. This led to the decision of having a fixed price increase for every additional panel, estimated

[19] Assume as "model customer" the one with an average electricity consumption of 80€ per month, who is not at home during the day but it is during the weekends and who has a *Potência Contratada* of 6,9kW/h.

[20] According to CLab (2016) the average household electricity consumption per month in Portugal is estimated as €80,00.

[21] Price setting has been made in order to let customers to save at least, in the most pessimistic view (just one solar panel and low average consumption), one electricity instalment per year.

in €174,00 over the 5 years of the contract. Therefore, the monthly rent of the first solar panel was established at 5,90€ and the one per additional panel to 2,90€. All different pricing set-ups and margins connected with different type of configurations for more than one solar panels can be found in exhibit 11.

As it happens in the building solution presented before, precise exit mechanisms have been created for customers that will express the willingness to breach their contract. Again, customers can do it at any point of the contract's lifetime however, when breaching it, they will have to pay the remaining value of the contract in Present Value (PV).

This pricing window and pricing set-up will enable *edp + solar* to pitch an affordable and valuable solution for customers that are actually living in a single house, while achieving the main objective of obtaining a market share of at least 20% in Portugal in the long run.

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